@AppleIIBot: Bringing Applesoft to Twitter

By Kay Savetz

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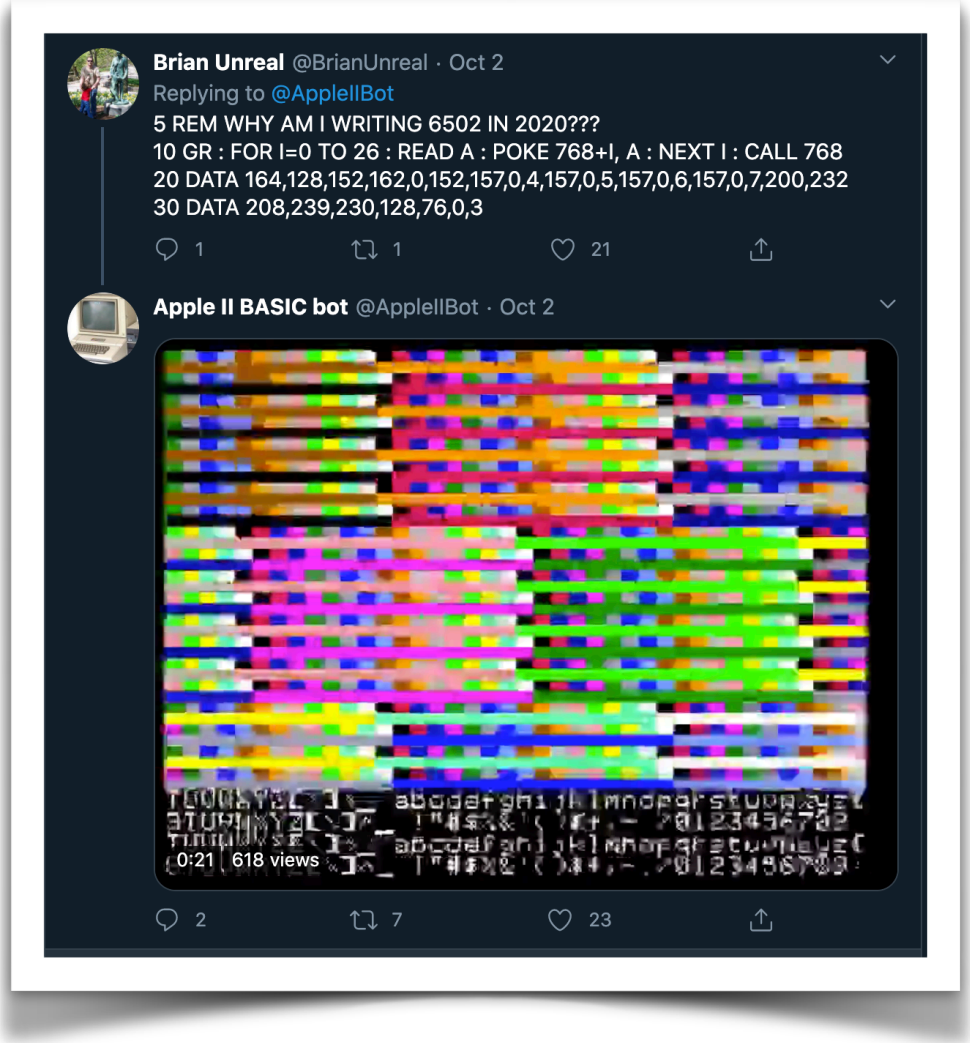
What programs can you create on an Apple II when your code is limited to the length of a tweet? Were discovering the answer with my creation, @AppleIIBot. When you send a tweet containing a short Applesoft BASIC program to the bot, it runs that program in an emulator and responds with a video of your program running.

I announced the bot in early October, and within days it gained more than a thousand followers. People have submitted hundreds of programs, including scrolling messages, classic graphics demos in lo- and hi-res, and new code.

The bot runs on a Raspberry Pi 4 located in my basement. The software is a Python script that checks Twitter every two minutes for new mentions. When it sees that someone has mentioned @AppleIIBot, it runs the tweet through an Applesoft BASIC

tokenizer (which turns human-understandable words like PRINT and GOTO into shorthand that's easier for the computer to quickly understand). If it's valid BASIC, the script copies the tokenized code to a DOS 3.3 disk image using AppleCommander (a set of tools to manipulate disk images) and boots that disk in linapple, a Linux-based Apple II emulator. Next, the bot uses ffmpeg (an open-source video processing application) to capture a few seconds of video of the emulator running. Finally, the bot terminates the emulator and uploads the video as a Twitter reply to the user.

My Apple II bot project almost ended before it started due to trouble with the BASIC parser. This essential step tokenizes the code, turning it from human-readable to something the computer can better understand. I was using AppleCommander's inbuilt tokenizer, and the resulting code wasn't coming out right. For instance, instead of FOR X=1 TO 10, the tokenizer delivered wrongly spaced FORX = 11010, resulting in a syntax error. After I filed an issue in AppleCommander's GitHub code repository, Apple II community member Kris Kennaway wrote a new parser/tokenizer in Python. This tool behaves exactly like Applesoft's own parser because Kennaway based it on the original AppleSoft BASIC source code. It works perfectly. Although I'm not using AppleCommander's tokenizer, I do use AppleCommander to move the tokenized code onto a new disk image.


Brian Unreal @BrianUnreal · Oct 2
Replying to @AppleIIBot
5 REM WHY AM I WRITING 6502 IN 2020???
10 GR : FOR I=0 TO 26 : READ A : POKE 768+I, A : NEXT I : CALL 768
20 DATA 164,128,152,162,0,152,157,0,4,157,0,5,157,0,6,157,0,7,200,232
30 DATA 208,239,230,128,76,0,3
1
1
21
Apple II BASIC bot @AppleIIBot · Oct 2
0:21 | 618 views
2
7
23

The bot's followers and users aren't necessarily avid Apple II or retrocomputing enthusiasts; some are just people with fond memories of the computer. A few are satisfied to submit a quick "HELLO WORLD"-type program. Many don't post anything; they just watch the proceedings. Then there are the active participants who deeply explore everything they can do in Applesoft BASIC in just 268 characters of code. (That's 280 characters, minus the few needed to invoke the bot.)

The bot isn't limited to BASIC: assembly language coders are using Applesoft to deliver machine language payloads, creating some impressive demonstrations, such as speedy and clever animations.

This isn't the first retrocomputing Twitter bot, nor is it my first. AppleIIBot came on the heels of my first emulation bot, @Atari8BitBot, which can run any of five Atari 8-bit languages. Both of my bots were inspired by one that came well before them. @BBCMicroBot, which started in February 2020, runs tweeted code on an emulated BBC Micro, a computer that was popular in the Dominic Pajak, is also working on a bot for another British computer, the Acorn Archimedes (at @BBCbasicBot).

It delights me to know that this project is entertaining other people as well as myself. One Twitter user wrote, "@AppleIIBot has totally filled me with joy. Seeing all the great stuff people are sending to it and also chuckling when the result is an error message. To this middle-aged nerd who grew up with an Apple II, this is probably the best thing to come out of 2020." Another tweeted, "The best thing about the @AppleIIBot is discovering more awesome 1- and 2-liners! The space restrictions are even more strict than NIBBLE due to the hard 280 character limit of Twitter."

Another person told me simply, "Your bot brings joy to my life." That's incredibly gratifying. It's brought joy to me, too. I'm enjoying learning new things about Linux and re-learning things about Applesoft BASIC. I'm thrilled that this little project is helping so many people have a little fun with the Apple II. To get started, just send a tweet with a short program to @AppleIIBot. Full documentation is at https://appleiibot.com

2023 update: I shut down @AppleIIBot and my other Twitter bots in 2022, choosing not to use use Elon Musk's Twitter (now called X 🙄) anymore. I have moved my personal social media to Mastodon (@savetz@oldbytes.space) and may eventually modify @AppleIIBot to work there as well.

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